

Statement of  
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before the

House Budget Committee

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Mr. Chairman, Congressman Spratt, and Members of the Committee:

I welcome the opportunity to comment on the effects of energy policy on growth of the United States economy, and to present my views of energy policy challenges facing the Nation.

**Backdrop**

Before discussing the links between energy policy, economic policy, and economic performance, let me sketch briefly the current state and future prospects of the energy market. Higher recent energy prices reflect, in part, the rapid pace of economic growth we have witnessed over the past decade. As in most markets, energy supply and demand take time to adjust. Although no consumer likes high energy prices, higher prices do serve the useful function of signaling the need for exploration, development, and production by producers and changes in consumption by consumers. With the aid of thoughtful policy, market adjustments

will bring forth additional supplies and improve efficiency in consumption. For example, improved technologies would enable us to increase supply cleanly, while efficient consumption would improve the environment. Distorted market signals can lead to shortages, high prices, and pollution.

Oil is a vital input to our economy. The Energy Information Administration (EIA) expects oil prices to remain high through 2002, affecting the cost of transportation, heating, electricity generation, and industrial production. High oil prices mean high prices for petroleum products, such as gasoline, diesel fuel, heating oil, jet fuel, and propane. In May, the U.S. benchmark West Texas Intermediate crude oil price averaged about \$29 per barrel. The tight gasoline market helped increase demand for crude oil, thereby pushing its price higher as concerns grew that the approaching summer driving season would face price instability similar to that in 2000. The EIA projects that oil prices will rise this summer by another \$2 to \$3 per barrel from their May levels. These higher prices are expected to be maintained for the rest of the year, in part because OPEC members have announced that their production quotas will not increase this summer. The recent decision by Iraq to halt oil exports, which were about 2 million barrels per day, was slow to elicit a response in spot and futures markets for oil. This may have been due to initial questions about the credibility of Iraq's statement and/or market expectations that OPEC members may change their supplies. Perhaps due to changes in these market perceptions, spot and futures prices have since risen.

The rapid increase in wholesale gasoline prices led to widespread increases in U.S. pump prices. It also generated record spreads in April of spot gasoline price over crude oil cost. Relatively low levels of gasoline inventories until May of this year may have contributed to the duration of the recent price increase. These increases in spreads have, however, encouraged

suppliers to accelerate production and increase imports to take care of existing or expected shortfalls in product availability. Consequently, retail gasoline prices have fallen from their peak, and total stocks have since risen substantially—to levels above those at this time last year.

Refiners face additional challenges as a result of various state and local clean fuel requirements for distinct gasoline blends (“boutique fuels”). These different requirements sometimes make it difficult, if not impossible, for regions to draw on gasoline supplies from nearby areas or states when the local supply is disrupted. When there is a shortfall of supply relative to demand, prices will increase until supply increases and/or demand falls enough to regain balance between the two. Therefore, to the extent that the existence of “boutique fuels” limits potential sources of additional supply when prices rise, price spikes will be greater than they would be if gasoline blends across geographic regions were more similar, or were given greater flexibility to be used as substitutes for each other.

Between October 2000 and March 2001, natural gas prices at the wellhead averaged \$5.74 per thousand cubic feet, more than double the price over the same period one year earlier. Natural gas prices began climbing last summer primarily in response to consumption increases coupled with tightened supplies, including low levels of underground gas storage that would be available for the heating season. Following the largest winter withdrawals since the 1995-1996 season gas storage levels ended the heating season 36 percent lower than last year. As a result of record injections since the beginning of the refill season, as of June 8 gas storage levels were less than one percent below the six-year average level. In 2001, the annual average wellhead price is projected by EIA to be \$4.75 per thousand cubic feet. Next year, EIA expects a dip in the average annual wellhead price to \$4.24 as increases in production and imports needed to keep

pace with the rapidly growing demand will be furnished, for the time being, by relatively expensive supplies for gas due to rising marginal production costs.

Spot prices for electricity and natural gas have been high in California compared to the rest of the country. Spot prices for electricity in the California-Oregon border market have recently been about four times higher than spot prices prevailing in the Pennsylvania-New Jersey-Maryland market.

Electricity reserve margins remain quite slim in the California system as a whole. In their summer assessment report published in late March, the California Independent System Operator (CAISO) estimated that almost 3,400 MW of new generating capacity will come online by September. However, the new capacity will not be able to satisfy the growing demand for electricity. The CAISO estimated that capacity deficiency, inclusive of imports, will range from over 3,600 MW in June to 700 MW in September. Given this forecast, the CAISO expects that load curtailments (blackouts) will occur this summer.

### **Recent Economic Developments**

These developments in energy markets are occurring at a time in which we are experiencing concern about the strength of the economy. Beginning in the fourth quarter of 2000, GDP growth declined from the unsustainably high rate of 4.2 percent recorded in the first three quarters. Real GDP growth slowed to 1 percent in the fourth quarter, and 1.3 percent in the first quarter of 2001. The Conference Board's index of coincident indicators peaked last September at 116.6, dipped to 116.3 in November, and has since risen to 116.5 in April.

The slowdown in the pace of economic growth reflects myriad factors. Consumption, which accounts for approximately two-thirds of aggregate demand, has held up relatively well

during the recent growth slowdown despite the reduction in wealth that has accompanied the decline in equity prices. However, business fixed investment spending overall has stagnated over the past two quarters. Equipment and software growth declined noticeably in the fourth and the first quarters. In contrast, investment in non-residential construction is up sharply, with first-quarter real investment 10 percentage points above its level a year ago. This growth is being led by construction in energy extraction industries, and is likely to continue as more electricity generating plants are built. Also, the rising cost of energy over the past two years has acted as a kind of tax on both consumers and those firms that are not energy producers.

Despite the deceleration, it is unlikely that the U.S. economy is in a recession, as real growth has been and is anticipated to remain positive. The June Blue Chip consensus of economic forecasters foresees real GDP to grow 1.8 percent during the four quarters of 2001, and 3.4 percent during 2002. Nevertheless, there are some factors that threaten to delay a full recovery in growth.

### **The Macroeconomic Impact of Energy Price Increases**

As noted earlier, one area of concern is the impact of high energy prices. Although the share of households' budgets devoted to energy needs are not at historical highs, the elevation of relative prices comes at a time when the economy is fragile. Firms face increased energy costs in a period of slackening demand. The sharp rise in energy costs reduced profit margins for non-financial, non-energy corporations in the fourth quarter. A substantial portion of the rise in total costs of non-financial, non-energy corporations between the second quarter of last year and the first quarter of this year reflected the increase in energy costs. Before discussing specifics of how developments in each energy market may affect the economy, it is useful to review briefly

the broad mechanisms by which changes in energy prices affect two key measures of economic performance: GDP growth and inflation.

As with price increases in any other market, an increase in the price of energy goods may reduce real GDP growth through six channels:

- Increasing the cost of production inputs, thus leading to lower profits, output, and capital formation
- Lowering the real income of consumers, thereby dampening consumer spending
- Lowering the level of real money balances (money supply divided by price level) by raising aggregate price levels. If the money supply were to remain constant, interest rates would rise in order to maintain equilibrium between money demand and supply. This, in turn, would have a depressing effect on investment holding all else constant.
- In the case of oil, as with any other product of which the United States is a net importer, increased prices affect the purchasing power of our national income through their impact on our terms of trade. The increased price of imported oil forces us to devote more production to exports as opposed to satisfying domestic consumption of goods and services, even if we consume the same physical quantity of foreign oil as before.
- There is also an indirect impact upon U.S. growth through third-country effects. If an oil price increase negatively affects growth in other countries, they will consume less. This could lower demand for imports from the United States.
- If changes in the price of energy relative to other goods are expected to be long-lasting, these changes will trigger adjustments in the economy—shifts of resources among sectors—that entail real adjustment costs.

Both directly and indirectly, energy price increases may also bring about changes in the aggregate price level (inflation). As of December 2000, the prices of refined oil products, natural gas, and electricity contributed 3.8 percent, 1.4 percent, and 2.5 percent respectively to the Consumer Price Index for all Urban Consumers (CPI-U). In sum, energy products contributed 7.7 percent to the CPI-U level. Thus changes in energy prices have the potential to directly affect the CPI-U level.

Energy is, of course, an important input in many goods and services provided in our economy. Its price also contributes to individuals' perception of their cost of living—thereby affecting efforts by some to gain wage concessions. As a result, an increase in energy costs can filter through to raise the price of other goods and services, indirectly putting upward pressure on the CPI-U. The strength of these effects varies depending on certain characteristics of the economy. One key determinant is how competitive markets are in those sectors in which energy products constitute an important input. Second, the inflationary impact of higher energy prices can vary across countries depending on the bargaining power of labor, relative to management. Finally, reactions of monetary policy to energy price changes will also influence the response of consumer prices to higher energy prices.

While the historic direct contribution of energy price changes to changes in the CPI-U can be determined by examining data, the mitigating factors cited above make a determination of the overall effect of energy price increases on the price level difficult.

### **Impact of Developments in Specific Energy Markets**

I would now like to address the impact of developments in each of the key energy markets: petroleum, natural gas, and electricity.

**Petroleum.** From 1998 to 2000, the prices of many energy products rose sharply from their low levels—crude oil cost as little as \$11 per barrel in December of 1998, when it had cost \$20 per barrel for much of 1997. To assess the effect of this price increase on the economy, it is important to make the distinction between permanent and temporary energy price increases. To the extent that it is unlikely that the oil prices in 1998 were long-term equilibrium prices, it may be more reasonable to use the \$20 price as a baseline. Evaluated from this perspective, the relevant price increase experienced since 1997 (that might be expected to persist for some years) was about \$10 a barrel or approximately 50 percent (the price of West Texas Intermediate has recently been approximately \$29 per barrel).

A recent International Monetary Fund analysis<sup>1</sup> of oil price shocks on the US economy determined that a price shock of this magnitude results in a 0.2 percentage point reduction in output below what it otherwise would have been in the first year after the shock, and a 0.4 percentage point reduction in the second year, with the effect diminishing thereafter. The shock adds 0.2, 0.7, and 0.5 percentage points, respectively, to core inflation in the three years after the shock (overall inflation, which incorporates energy prices, will be much higher the first year after the shock). Another macroeconometric model suggests that an increase of \$10 per barrel yields a 0.4 percent reduction in output relative to baseline in the first year. While the models differ in their exact predictions, they yield effects of similar magnitude. Given relative stability in oil prices since their peak in the latter part of 2000, barring future shocks, we anticipate the effects of the oil price increase should dissipate over the next year.

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<sup>1</sup> Benjamin Hunt, Peter Isard and Douglas Laxton, 2001, "The Macroeconomic Effects of Higher Oil Prices," *IMF Working Paper* WP/01/04.



The most recent price pressures in the petroleum market have been in gasoline prices, which brought about concerns with respect to possible effects on consumer spending, and thereby on the overall economy. A rise in these prices acts as a tax on households' incomes and spending. The surge in wholesale and retail gasoline prices in recent months has been attributed less to changes in crude oil prices than to, among other factors, low gasoline inventories earlier this spring and a shortage of refinery operating capacity in the United States. Thus the economic effect of recent increases in gasoline prices (and natural gas prices—see below) has been mostly redistributive within the United States. The resulting increased margins – or scarcity rents – for suppliers of refined products provide important signals to potential suppliers, eliciting responses (both increased imports and domestic production) that have already resulted in greater available supply and reduced prices. Furthermore, higher margins encourage investment in new refining capacity after many years in which low returns on investment in the refining industry likely discouraged such investments.

The impact of crude oil price increases may also affect the United States through its effect on trading partners. The IMF analysis cited above suggests that an increase in the price of a barrel of oil from \$20 to \$30 would result in a 0.1 percentage point reduction in Eurozone output in the first year after the shock, and a 0.4 percentage point reduction in the second year. It suggests Japan would be less significantly affected—no impact in the first year and only a 0.1 percentage point reduction in output in the second year. This may affect the United States to the extent that these impacts on our trading partners' output reduce their demand for imports from the United States.

**Natural Gas.** The rise in natural gas prices in the last quarter of 2000 contributed directly and indirectly (through its effect on the cost of electrical power generation) to much of the rise in overall energy costs for non-financial, non-energy corporations. However, because we import little natural gas, higher prices are largely redistributive in nature—resulting in a transfer of income within the United States from natural gas users to natural gas producers. The increased expenditure on natural gas imports in 2000 due to prices being above 1997 levels was roughly one-sixth to one-seventh that on oil imports.<sup>2</sup> Moreover, it is important to recall that virtually all of the 16 percent of natural gas consumption that is accounted for by imports originates in Canada, a large importer of U.S. goods. Thus the net "withdrawal" of spending from the U.S. economy is made smaller since a large proportion of the resulting Canadian spending is on U.S. exports. Nonetheless, these higher prices are still likely to weigh on the economy in the short run because the increase in capital spending by energy producers is unlikely to offset the drag on spending by energy consumers.

Natural gas prices are higher relative to trend all over the country. However, during the past few months, they were highest in California. Even there, however, a recent study published by the Federal Reserve Bank of San Francisco notes that "...although rising natural gas prices have hurt some producers and consumers in the Twelfth [Federal Reserve] District, there is little evidence that rising costs have significantly slowed economic growth in the region." Further, the study observes that expenditures on natural gas in the Twelfth District amount to less than one percent of Gross State Product (GSP).<sup>3</sup>

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<sup>2</sup> This calculation compares the values for the following calculation for oil and natural gas: quantity imported in 2000 times the absolute change in price per unit of quantity between 1997 and 2000.

<sup>3</sup> Mary Daly, "Economic Impact of Rising Natural Gas Prices," *Federal Reserve Bank of San Francisco Economic Letter* 2001-04 (February 9, 2001)

It is also of interest that some firms stopped production, not because they could not afford to purchase natural gas, but because they had forward contracts for natural gas, and found it more profitable to resell the gas than to use it to produce their goods.

The differences in prices for natural gas observed across regions, and occasional interruptions in gas supply, buttress the Administration's argument that more resources need to be devoted to enhancing the Nation's natural gas delivery infrastructure. Accordingly, the National Energy Policy Development Group has highlighted this policy measure in its report.

**California and the Electricity Situation.** Nowhere is the concern about the impact of the electricity market on the economy greater than in California. Most analysts have concluded that the reductions in electricity consumption (due to rolling blackouts and voluntary outages) have thus far had only a small impact on California GSP, and hence national GDP, because of ample opportunity to reallocate production and consumption activities around the outages.

Unfortunately, much of the significant additions to capacity that are currently being planned or are under construction will not be in place in time for the rising seasonal demand this summer which threatens shortfalls and blackouts. Even more unfortunate are press reports that planned capacity may be canceled due to uncertainty regarding the regulatory environment in California. The likely impact of the outages during the upcoming summer months is difficult to determine given the vagaries of the weather and the uncertain effect of the rate structure that the California Public Utilities Commission has implemented. Gauging from the past, the damage from summer blackouts is likely to be limited if firms with critical needs for uninterrupted power install backup generators; some reduction in demand results from higher retail prices; and we experience a moderate summer. California's third-quarter GSP growth might be reduced

noticeably, however, if an unseasonably hot summer were to be combined with limited response to the change in retail prices.

As long as California and federal policies do not discourage new electricity generation, the imbalance should only be a concern in the short run. It is nonetheless a concern for the national economic outlook. The major impact on California will be felt in the longer term, as firms make decisions regarding where to locate. Firms that depend on a stable, uninterrupted supply of electricity, or use energy as a key component of their production process, may opt for locating outside of California.

### **Effect of Energy Prices on Government Outlays and Receipts**

In addition to having an impact on consumer demand, business investment, and possibly exports, changes in energy markets will also affect government outlays and receipts. One important channel through which energy price increases will impact outlays is through their effect on the CPI-U and thus on Cost of Living Adjustments (COLAs). COLAs affect payments for Social Security, Disability Insurance, Civil Service Retirement, Military Retirement, and Supplemental Security Income; as well as many smaller programs. While the total contribution of energy price increases to change in the CPI-U is uncertain, given the size of these outlays, even small contributions to changes in the overall CPI-U would have non-trivial absolute impacts on outlays. Finally, inasmuch as increased energy prices reduce national income, government receipts will also be affected.

## **Energy Policy**

The President's National Energy Policy lays out a comprehensive blueprint for addressing energy problems facing our country. There are many excellent ideas in the National Energy Policy, but I would like to emphasize two economic contributions. First, and perhaps the most important, markets have, in general, done an excellent job providing energy to alleviate scarcity and mitigate price spikes. Where possible, market-based solutions will provide the best response to our energy needs. However, where market distortions occur, action may be necessary to meet the challenge of increasing supply and reducing demand. Relying on market signals to allocate resources does not require abandoning vulnerable groups. Because there is a significant potential for energy problems throughout the remainder of this year, the effects of higher market prices can be mitigated for those people who need help through programs like the Low Income Home Energy Assistance Program (LIHEAP) and weatherization assistance, which also promotes conservation. Second, an important policy challenge is to repair and expand our energy infrastructure. This point relates to the first in that an improved infrastructure enhances the geographic scope of potential sources of supply that can respond to market signals in any particular location.

Markets have shown the powerful ability to send signals to alleviate scarcity by bringing about supply and demand responses. Therefore one of the contributions of the President's Energy Plan is to ensure that government policies in the furtherance of valid policy aims, such as environmental protection, achieve these aims while minimizing the extent to which they delay appropriate responses to market signals.

Our current network of electric generators, transmission lines, pipelines, and refineries that convert raw materials into usable fuel is in need of repair and expansion. The natural gas

distribution system, likewise, is hindered by an aging and limited network of pipelines. Meeting the anticipated growth in demand will require some 38,000 miles of new gas pipelines, along with 263,000 miles of distribution lines. Similarly, an antiquated and inadequate transmission grid hinders our ability to use electricity generation surpluses in some regions to alleviate shortages in others. A crucial transmission bottleneck in the middle of California limits the amount of available power in the south that can be shipped to the north during emergencies. While some of the concerns about future energy prices arise from the balance between anticipated available supply and demand at the national level, a number of local energy markets make up this aggregate national energy market. Even if the supply is plentiful at the aggregate level, the lack of adequate infrastructure can cause unnecessary and harmful local price spikes when local supply falls short of local demand, and infrastructure limits constrain the influx of additional supplies from other areas. In addition to the issue of “boutique” fuels mentioned earlier, one additional example is the case of electricity in New York City. The tight match there between available supply and peak demand that some observers expect will set the stage for relatively high wholesale electricity prices and potentially significant price spikes. Transmission constraints into the city limit the extent to which prices there can be mitigated by expected surplus capacity in the rest of the state, and additional surplus supply from outside the state. With these concerns in mind, the President’s National Energy Policy makes numerous recommendations with an aim towards improving this infrastructure.

Energy problems facing our economy have been building for years and families and businesses are paying the price for higher energy costs. Only a concerted, focused and forward-looking effort by both the public and private sectors will succeed in strengthening America’s response to the energy problems now facing us.

## **Long-term Economic Outlook**

While we have talked in depth about the effects of developments in energy markets on the economy, it is important to recognize that most of these effects are short-run phenomena. While this is not to say they are unimportant, it is important to remember that they do not drive the long-run growth potential of our economy. Over the longer term, the prospects for the U.S. economy remain bright. I say this because of the acceleration of trend productivity growth observed over the last few years, and the accompanying rise in the growth rate of potential output, making possible rising living standards and low inflation. Over the 1973 to 1994 period, the average annual growth rate of labor productivity in the non-farm business sector was 1.4 percent. From 1994 to 2000, it was 2.5 percent. Over the same period, manufacturing productivity grew at 4.7 percent, versus the 2.6 percent observed in the earlier period.

The latest release on productivity growth has given some observers pause for thought. Two cautionary points are in order. First, labor productivity is pro-cyclical, so that some reduction in productivity growth is to be expected. Second, the productivity growth rate for the first quarter is likely to be downwardly biased, because of the difficulty in measuring self-employed hours. Subsequent observations on productivity are likely to reaffirm a higher trend growth rate.

Rapid productivity growth, upon which our future prosperity rests, does not occur in a vacuum. It depends upon the appropriate general policy framework and energy policy framework. These frameworks require that firms face the correct incentives to invest, and households face market signals in allocating their expenditures.

**Conclusion**

Changes in energy prices exert important influences on the economy's actual and potential output growth and inflation. These influences carry over to Federal receipts and outlays. Managing economic and budgetary impacts of energy price changes is made easier by sound energy policy that enhances the role of market forces.

Thank you, Mr. Chairman. I would be happy to answer any questions.